

**METHOD AND APPARATUS TO GENERATE AN RF EXCITATION  
CONSISTENT WITH A DESIRED EXCITATION PROFILE USING A  
TRANSMIT COIL ARRAY**

5    **ABSTRACT**

          A system composed of multiple transmit coils with corresponding RF pulse synthesizers and amplifiers is disclosed. A method of designing RF pulses specific to each transmit coil to induce spatiotemporal variations in a composite  $B_1$  field is also  
10    disclosed. The present invention supports faithful production of desired excitation profiles and accommodates the use of any coil array geometry. The present invention also supports reduction in excitation pulse length. Through effective  $B_1$  field maps for each transmit coil, mutual coupling and other inter-coil correlations are accounted for in the RF pulse design.

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